

1622 CWDM DFB Laser Module

The 1622 ITU G.695 compliant CWDM forward path DFB laser components are designed for both broadcast and narrowcast analog applications. The highly linear, OC-48 pinout compatible components feature options for up to 20 mW of minimum optical output power with superior distortion performance over an enhanced temperature range of -40°C to +85°C.

Applications

- CWDM forward path
- Broadcast and narrowcast networks
- CWDM cuts new fiber costs
- High optical splits

Features

- OC-48 pinout compatible
- *Telcordia Technologies™* 468 compliant
- Up to 110 channel count
- Up to 20 mW
- Wide temperature range—stable even in harsh environments

Performance Highlights

	Min	Typical	Max	Units			
Wavelength	1287	1291	1295	nm			
	1307	1311	1315				
	1327	1331	1335				
	1347	1351	1355				
	1367	1371	1375				
Optical Output Power	4	-	-	mW			
	6						
	8						
	10						
	13						
Temperature Range	16	-	-	°C			
	20						
	-40						
	+85						
	5				-	-	MHz
1002							
Carrier to Noise Ratio	51	-	-	dB			
Composite Second Order (1622B versions)	-	-	-59	dBc			
Composite Triple Beat	-	-	-65	dBc			

See following pages for complete specifications and conditions.

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Condition	Min	Max	Units
Operating Case Temperature	T_C	continuous	-40	+85	°C
Storage Temperature	T_{STG}	-	-40	+85	°C
Laser Forward dc Current	-	-	-	150	mA
Photodiode Reverse Voltage	V_{RPD}	-	-	10	V
Laser Reverse Voltage, dc	-	-	-	1	V
ESD	-	HBM: R = 1500 Ohm, C = 100 pF	-500	500	V
TEC Current	I_{TEC}	continuous	-1.9	1.9	A

Electrical/Optical Characteristics

Laser Temperature (T_L) = 25°C, $I_F=I_{OP}$, Beginning of Life (BOL)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Wavelength	□	1290 nm option	1287	1291	1295	nm
		1310 nm option	1307	1311	1315	
		1330 nm option	1327	1331	1335	
		1351 nm option	1347	1351	1355	
		1371 nm option	1367	1371	1375	
Optical Output Power	-	-04 version	4	-	--	mW
		-06 version	6	-	-	
		-08 version	8	-	-	
		-10 version	10	-	-	
		-13 version	13	-	-	
		-16 version	16	-	-	
Optical Isolation	ISO	-	30	-	-	dB
Sidemode Suppression Ratio	SMSR	-	35	-	-	dB
Threshold Current	I_{TH}	-	-	-	20	mA
Operating Current	I_{OP}	varies with power option	-	-	120	mA
Monitor PD Responsivity	r_{PD}	$V_{RM}=5V$	10	-	200	μA/mW
Thermistor Resistance	R_{TH}	$T_{OP}=25\text{ °C}$	9.5	10	10.5	KOhm
Thermistor Temp. Coefficient	TC_{TH}	$T_{OP}=25\text{ °C}$	-	-4.4	-	%/°C
TEC Current	I_{TEC}	$-40 < T_C < +85\text{ °C}$, $I_F = 100\text{ mA}$	-1.5	-	1.6	A
Fiber Length	-	May include splice	1.0	1.5	-	m
Fiber Buffer	-	-	-	900	-	μm
Fiber Core / Cladding	-	-	-	9/125	-	μm

RF Characteristics

Laser Temperature (T_L) = 25°C, $I_F = I_{OP}$, Beginning of Life (BOL)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Frequency Range	F	-	5	-	1002	MHz
Frequency Response	S21	$I_F = 60$ mA, 5 - 1002 MHz	-	-	± 0.75	dB
Carrier-to-Noise Ratio	CNR	-	51	-	-	dB
Comp. Second Order	CSO ⁽¹⁾	Standard options (1622A) Enhanced options (1622B)	-	-	-56 -59	dBc dBc
Composite Triple Beat	CTB ⁽¹⁾	1622A & 1622B	-	-	-65	dBc
Relative Intensity Noise	RIN	-	-	<-155	-	dB/Hz

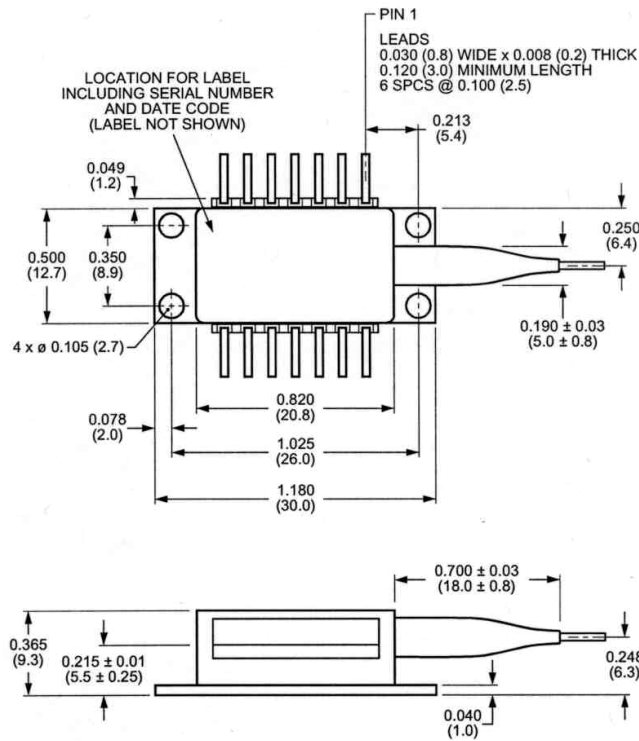
3.2% OMI, 79 ch. NTSC

In order to prevent reflection-induced distortion, the laser must be connected to an optical cable having a return loss of at least 55 dB for discrete reflections and 30 dB for distributed reflections.

⁽¹⁾ Distortion performance assumes 0km dispersion.

Outline Diagram

Dimensions are in inches and (millimeters)



Electrical Schematics

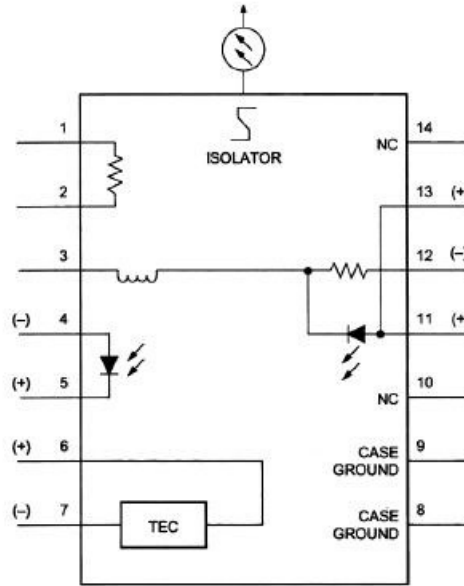


Figure 1. 1622 CWDM Laser Schematic

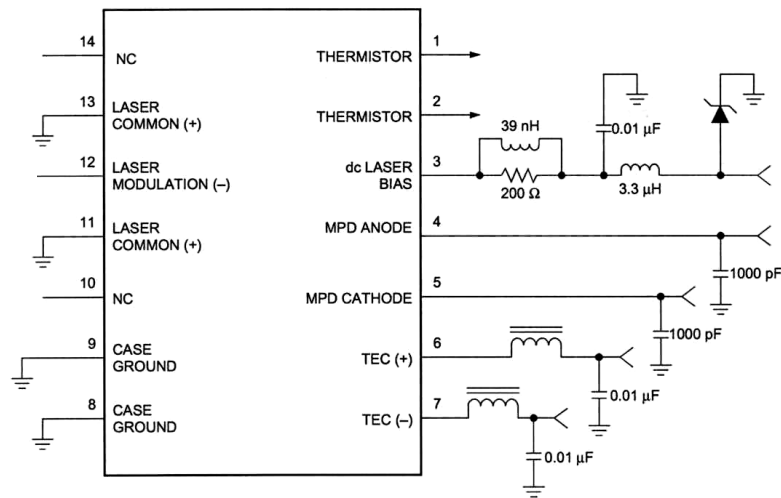


Figure 2. 1622 CWDM Circuit Schematic

Pin Definitions

Pin	Description
1	Thermistor
2	Thermistor
3	Dc Laser Bias (-)
4	MPD Anode (-)
5	MPD Cathode (+)
6	Thermal Electric Cooler (+)
7	Thermal Electric Cooler (-)
8	Case Ground
9	Case Ground
10	NC
11	Laser Common (+)
12	Laser Modulation (-)
13	Laser Common (+)
14	NC

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1 laser product. This device has been classified with the FDA/CDRH under accession number 0220191.

All Versions of this laser are Class 1 laser product, tested according to IEC 60825-1:2007/EN 60825-1:2007 Single-mode fiber pigtail with SC/APC connectors (standard).

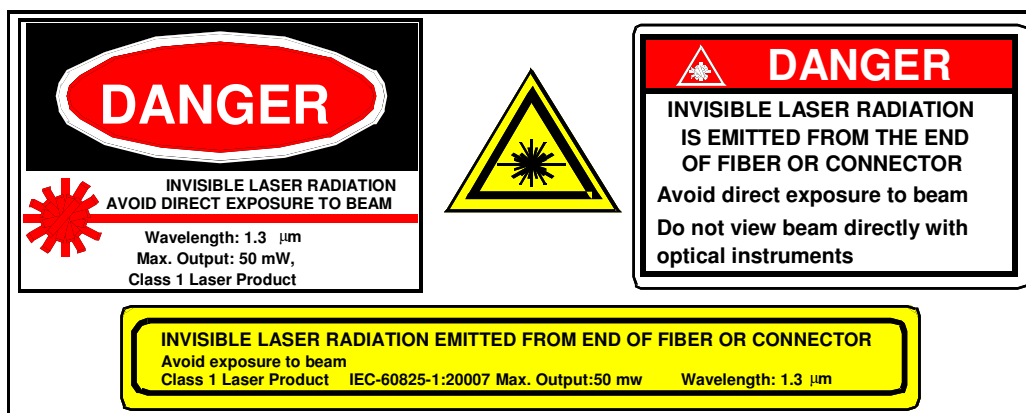
Wavelength = 1.3 μm .

Maximum power = 50 mW.

Because of size constraints, laser safety labeling (including an FDA class 1 label) is not affixed to the module, but attached to the outside of the shipping carton.

Product is not shipped with power supply.

Caution: Use of controls, adjustments and procedures other than those specified herein may result in hazardous laser radiation exposure.

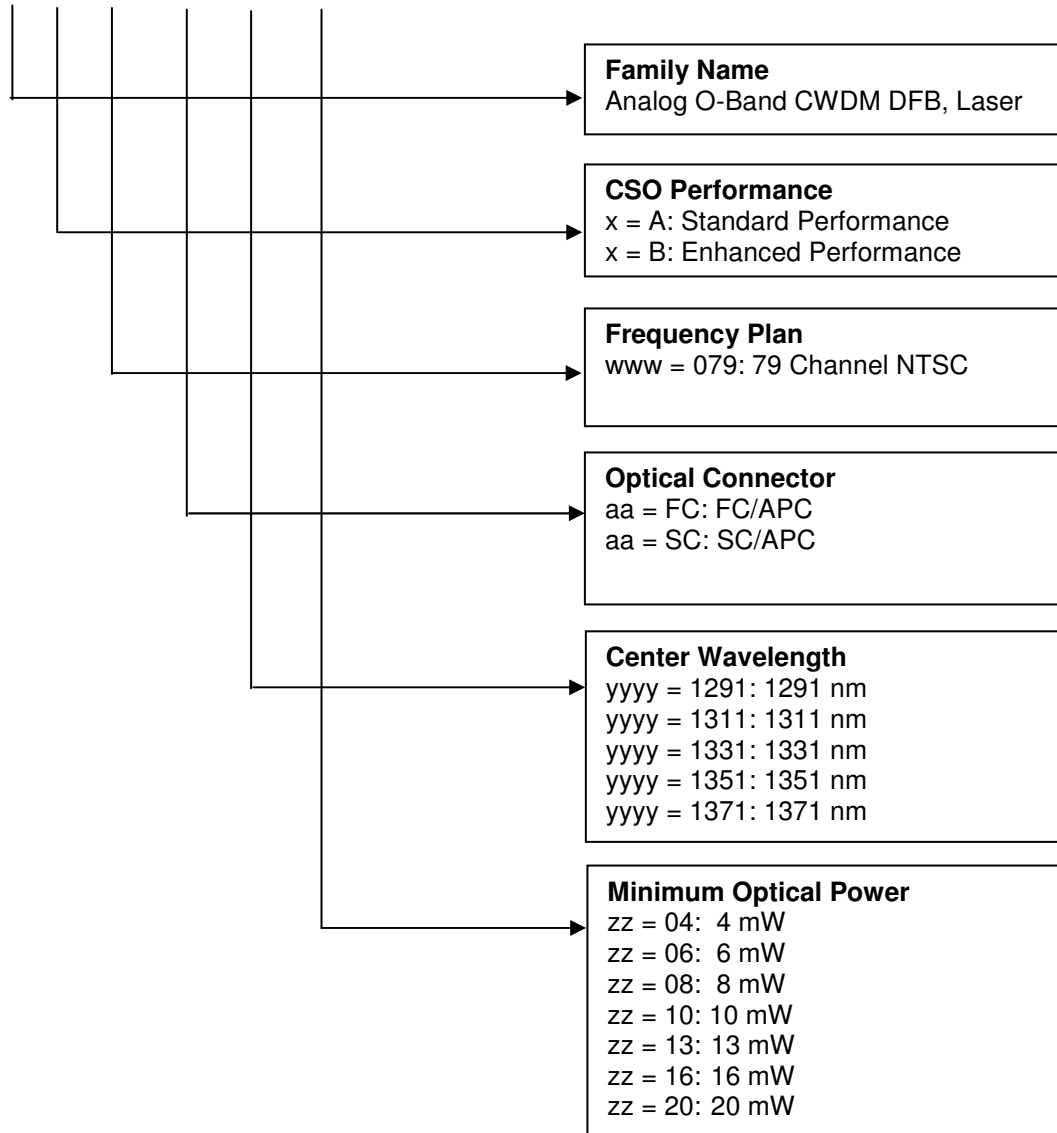


Ordering Information

Contact Emcore for ordering information at 626-293-3400.

Ordering Code Definitions

1622x - www - aa - yyyy - zz



Example

1622B-110-SC-1331-10: CWDM Laser, Enhanced performance, 110 channel NTSC, SC/APC connector, 1331 nm center wavelength, 10 mW minimum optical power.

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